

SESSION NR: AT5003303

S 2950 64 333-10020-7

Chernov, L. N.

Automatic single-channel optimizers (extreme regulators)

SOURCE: EKKA, entsiklopediya izmereniy, kontrolya i avtomatizatsii (Encyclopedia of measurement, control and automation) (p. 11). Moscow: Sov. radio, 1970.

DEFINITION: Control systems which

AUTOMATIC: Automatic optimizers are control devices which have the ability to find the optimum value of a function of several variables by means of iterative calculations. They are used in problems of optimization, extremal control, and extremal estimation.

REFERENCES:
1. Chernov, L. N. Voprosy optimizatsii i optimiziruyushchikh ustroystv. Moscow: Sov. radio, 1970.
2. Chernov, L. N. Optimiziruyushchiye ustroystva. Moscow: Sov. radio, 1971.

L 28751-65

ACCESSION NR: AT5003303

uses a continuously changing input variable to locate and memorize the output extremum. When the extremum is passed, each current value of the output variable is compared with the previous value and when the difference between them is less than a certain value the direction of change of the output variable is determined. If the output value has changed its direction, the self-oscillation cycle starts. The self-oscillations continue until the output variable determines the direction of change again.

RECEIVED BY: Institut avtomatiki i telemekhaniki M. V. Lomonosova Akademii Nauk SSSR
Date: 1982

TRANSMITTED: 00 ENCL: 00 SUB COPIE: F

REF ID: A6V1 004 OTHER: 002

2/2
Card

ACCESSION NR: AP4036505

S/0103/64/025/005/0631/0640

AUTHOR: Fitsner, L. N. (Moscow)

TITLE: Automatic optimization of spatial-distribution complex systems

SOURCE: Avtomatika i telemekhanika, v. 25, no. 5, 1964, 631-640

TOPIC TAGS: automatic control, simulator, network type simulator

ABSTRACT: Many problems of spatial distribution (planning electric or water-supply systems, oil fields, construction work, etc.) can be solved by means of electric network simulators. For very complex networks with many inputs and outputs, manual operation of the simulator becomes difficult and provides little assurance that the ultimately found regime is really optimal. For such cases, an automatic optimization is proposed. The problem of optimization of the potential distribution is reduced to minimizing a function of a large number of variables with constraints imposed on the range of their variation. The minimization

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problem is solved by the method of variable-frequency search; it is applicable to complex functions, including ridge and "ravine" types. An example of the distribution of potential over a resistor network is used to illustrate the method. An experimental investigation of the optimization system was conducted "with the participation of E. Ye. Gachinskiy and S. N. Makarovskiy." Orig. art. has: 9 figures and 20 formulas.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics, AN SSSR)

SUBMITTED: 25Sep63 DATE ACQ: 03Jun64 ENCL: 00

SUB CODE: MA, IE NO REF SOV: 008 OTHER: 000

Card 2/2

AVEN, O.A.; DVORETSKIY, V.M.; DOMANITSKIY, S.M.; ZALMANZON, L.A.; KRASSOV, I.M.; KRUG, Ye.K.; TAL', A.A.; KHOKHLOV, V.A.; BULGAKOV, A.A.; DEMIDENKO, Ye.D.; BERNSHTEYN, S.I.; YEMEL'YANOV, S.V.; LERNER, A.Ya.; MEYEROV, M.V.; PEREL'MAN, I.I.; FITSNER, L.N.; CHELYUSTKIN, A.B.; ZHOZHIKASHVILI, V.A.; KL'IN, V.A.; AGEYKIN, D.I.; GUSHCHIN, Yu.V.; KATYS, G.P.; MEL'ITSER, L.V.; PARKHOMENKO, P.P.; MIKHAYLOV, N.N.; FITSNER, L.N.; PARKHOMENKO, P.P.; ROZENBLAT, M.A.; SOTSKOV, B.S.; VASIL'YEVA, N.P.; PRANGISHVILI, I.V.; POLONNIKOV, D.Ye.; VOROB'YEVA, T.M.; DEKABRUN, I.Ye.

Work on the development of systems and principles of automatic control at the Institute of Automatic and Remote Control during 1939-1964. Avtom. i telem. 25 no. 6:807-851 Je '64.
(MIRA 17:7)

L 05002-67 EWT (k)/EWT (d)/EWT (n)/EWP (v)/EWT (l)

ACC NR: AT6022634

(A) SOURCE CODE: UR/2950/65/000/005/0071/0072

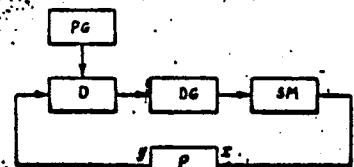
39
B+1AUTHOR: Fitsner, L.N.

ORG: Institute of Automation and Telemechanics (Technical Cybernetics), Moscow (Institut avtomatiki i telemekhaniki (tehnicheskoy kibernetiki))

TITLE: Automatic relay optimizer

SOURCE: EIKA, Entsiklopediya izmereniy, kontrolya i avtomatizatsii (Encyclopedia of measurement, control, and automation), no. 5. Moscow, Izd-vo Energiya, 1965, 71-72

TOPIC TAGS: servomechanism, optimal automatic control, circuit design

ABSTRACT: An automatic relay optimizing device is described of a type designed to locate and maintain a value of quantity x such that $y = f(x)$ takes on a minimum or maximum value. A diagram of the optimizer is shown in Fig. 1. It contains a differentiator designed to determine

PG - pulse generator, D - differentiator, DG - direction guide, SM - servomechanism, P - plant

Fig. 1. Block diagram of the automatic optimizer.

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L 05862-67
ACC NR: AT6022634

the incremental sign of the quantity y to be optimized within time intervals T provided by the pulse generator. When finding minimum y , the servomechanism changes the input quantity of the plant in the proper direction when the increments at the differentiator output are negative, i.e., when $y(t + T) < y(t)$. When changing the incremental sign, it is necessary that the input quantity subsequently change in a direction opposite to the preceding direction. This operation is handled by the direction unit which issues a reverse command to the servomechanism. The differentiator can be transistorized for greater sensitivity. The electrical circuit of the optimizer, built around the use of electromagnetic relays, is described and the operational sequence is explained. A description is given of the extremum search process in a system containing an automatic optimizer and an inertial plant represented in the form of two series-connected parts: a linear inertial section and a nonlinear noninertial section. A graph illustrating the fundamental types of optimum search processes is presented and test results are briefly discussed.

Orig. art. has: 5 figures.

SUB CODE: 09,12/ SUBM DATE: none/ ORIG REF: 002

kh

Card 2/2

L 05864-67 EWP(k)/EWP(h)/EWT(d)/EWT(1)/EWP(1)/EWP(v)
ACC NR: AT6022635 (A) SOURCE CODE: UR/2950/65/000/005/0073/0074

39
B+1

AUTHOR: Fitsner, L. N.

ORG: Institute of Automation and Telemechanics (Technical Cybernetics), Moscow (Institut avtomatiki i telemekhaniki (tekhnicheskoy kibernetiki))

TITLE: Noise-resistant electrical optimizing device of proportional action

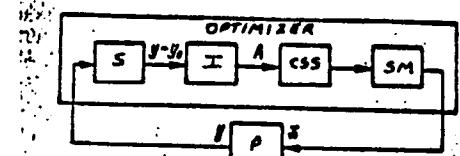
SOURCE: EIKA, Entsiklopediya izmereniy, kontrolya i avtomatizatsii (Encyclopedia of measurement, control, and automation), no. 5. Moscow, Izd-vo Energiya, 1965, 73-74

TOPIC TAGS: optimal automatic control, circuit design, electric relay

ABSTRACT: An automatic, electrical, noise-resistant optimizing device operating on the proportional principle for use in step-type extremal systems is described. The purpose of the optimizer is to automatically locate a value of the input quantity x at which the output quantity y will assume either a maximum or minimum value. The special features of this optimizer are 1) low error factor due to system instability during the search process; 2) negligibility of additional perturbations introduced into the system by the optimizer during extremum search; 3) high resistance to interference; 4) the capability of finding points both with zero value $\frac{dy}{dx}$.

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ACC NR: AT6022635



S-store, I-integrator, CSS-control signal shaper, SM-servomechanism, P-plant

as well as with derivative values other than zero. The operational principles of the device are explained on the basis of a schematic diagram (Fig. 1) and an electric circuit diagram. Orig. art. has: 3 figures and 5 formulas.

Figure 1. Block diagram of the automatic optimizer

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SUB CODE: 09,12/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

L 9008-66 EWT(d)/EEC(k)-2/EWP(1)
ACC NR: AP5027890

LIP(c) BC
SOURCE CODE: UR/0103/65/026/011/1968/1982

AUTHOR: Fitsner, L. N. (Moscow)

ORG: None

TITLE: Control of multivariable systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 11, 1965, 1968-1982

TOPIC TAGS: cybernetics, automatic control system, automatic control design, bio-telemetry, animal physiology, AUTOMATIC CONTROL THEORY

60
59
B

ABSTRACT: The author investigates a method of controlling objects with a large number of interconnected input and output variables. The problem includes finding a method of automatic control of a complex multivariable object O, which is characterized by a large number of input variables (x_1, \dots, x_n), which define the state of the object, and a large number of output variables (y_1, \dots, y_m) (Fig. 1). The automatic control system should,

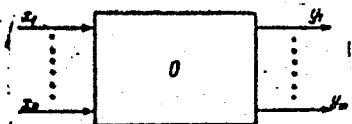


Fig. 1. Complex multivariable control object.

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UDC: 62-506.2

L 9008-66

ACC NR: AP5027890

by altering the input variables x_1, \dots, x_n , approximate by the best means possible (according to some present criterion) the output variables of the object y_1, \dots, y_m to the prescribed values y_{13}, \dots, y_{m3} . The object has a memory, i.e., it incorporates inertia elements; the parameters of the inertia elements are not known a priori and may vary slowly in certain directions with time. The control methods examined were posed by problems arising in the field of physiology, hence the solution of the technical problems in the article is intermixed with some data from physiology. It is shown that the control of the objects studied may be achieved by the minimization of the function of many variables. A hypothesis is advanced on the functioning of a simple control system in living organisms. It is concluded that it is still too early to make any definite conclusion regarding the correctness of the general hypotheses advanced on the function of lower orders of control systems of living organisms. These hypotheses, however, may be valuable for future research. The work was performed at the Institute of Automation and Telemechanics (Technical Cybernetics) (Institut avtomatiki i telemekhaniki (tekhnicheskoy kibernetiki)). The adjustment and experimental investigation of the first variant of the system of least constraint was conducted with the participation of Ye. V. Krasnushkin. Orig. art. has: 14 figures and 11 formulas.

SUB CODE: LS, IE/ SUBM DATE: 03Jul64/ ORIG REF: 003/ OTH REF: 002

QC
Card 2/2

FITT, Witold, mgr.,inz.

Participation of the "Madro" road machinery construction and
repair enterprises in mechanizing road construction.pt.1.
Drogownictwo 17 no.3:68-74 '62.

FITT, Witold, mgr. inz.

The production of road construction machines.
Przegl. mech 21 no.9/10:276-279. 10-25 My '62.

1. Zaklady Budowy i Naprawy Maszyn Drogowych Madro, Krakow.

FITT, Witold, mgr. inz.

The share of the Madro Works for the Construction and Repair
of Road Machinery in the mechanization of road construction
works. Drogownictwo 17 no.4:96-99 Ap '62.

FITTA, Stanislaw

Lining material for sections of grinding mills. Przegl
odlew 14 no.12:344 D '64.

"APPROVED FOR RELEASE: 06/13/2000

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FITTERMAN, B., inzh., kand.tekhn.nauk

"TSelina" station wagon for agricultural regions. Za rul.
19 no.10:12-13 0 '61. (MIRA 14:11)
(Zaporozh'ye--Automobile industry)

FITTERMAN, B., kand.tekhn.mack

Present trends in the simplification of motor-vehicle maintenance.
Avt.transp. 42 no.3s41-44 Mr '64. (MIRA 17:4)

FITTERMAN, B. M.

12T38

USSR/Trucks
Trailers

Nov/Dec 1946

"Standardization of Soviet Trucks," B. M. Fitterman,
4 pp

"Avtomobil'naya Promyshlennost'" No 11/12

Discusses need for increased truck transport. Describes trailers, semi-trailers, and various types of foreign and Soviet trucks and their uses. Diagrams and description of ZIS-150 articulated truck.

12T38

FITERMAN, B. M., Engr. Cand. Tech. Sci.

Dissertation: "Investigation of the Construction and Application Possibilities of Multi-Engine Automobiles." Moscow Automotive Mechanics Inst, 18 Dec 47.

SO: Vechernaya Moskva, Dec, 1947 (Project #17836)

AUTHOR: Fitterman, B.M., Candidate of Technical Sciences SOV/113-58-11-3/16

TITLE: Soviet Midget Cars (Ob otechestvennykh mikrolitrazhnykh avtomobilyakh)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, pp 4 - 10 (USSR)

ABSTRACT: In 1957, NAMI was engaged in studies to determine the most suitable types of midget cars and their units for utilization in the USSR. To cover individual as well as general requirements, the following 4 types (photo 1) are considered most desirable: a light four-seater, a light car to be used by physically handicapped people, a dual-purpose vehicle for the transportation of either 4 persons or 2 persons plus 200 to 250 kg of useful load, and a similar car of cross-country type for rural areas. The latter will have a 4 x 4 wheel formula, the other three, 4 x 2. All 4 types should be members of a car class with a maximum standardization of units and assemblies. Test models of such cars were manufactured in NAMI, the Moskovskiy zavod malolitrazhnykh avtomobiley (Moscow Light Car Plant), the Irbitskiy mototsiklet-troyeniya (Irbit Motorcycle Plant), the TsKB mototsiklos-troyeniya (TsKB of Motorcycle Designing), and the Serpukhovskiy motozavod (Serpukhov Motozavod). Simultaneously foreign midget cars have been studied in the USSR. Although air-

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Soviet Midget Cars

SOV/113-58-11-3/16

cooled 4-cycle engines are thought to be suited best for the new cars, the facilities available for engine construction in the motorcycle plants in Irbit and Kiev permit only construction of two-cycle engines for the time being. The article evaluates the performance characteristics, types of support frame, engines, couplings, gear boxes, chassis, controls, brakes, wheels and bodies of foreign light and midget cars and compares their features with those of the Soviet "Moskvich"-401 and -402 (tables 1 and 2). The chassis of the Soviet experimental NAMI-031 automobile (fig. 3) is mentioned. Production of the suspension of this car has been organized in the Mytishchinskiy machinostroitel'nyy zavod (Mytishchi Machine Building Plant). There are 2 photos, 3 diagrams, and 2 tables.

ASSOCIATION: NAMI

1. Automobile industry--USSR
2. Passenger vehicles--Design
3. Passenger vehicles--Performance
4. Passenger vehicles--Production

Card 2/2

FITTERMAN, B., kand.tekhn.nauk

General arrangement of automobiles with small cylinder capacity.
Za rul. 16 no.12:17-19 D '58. (MIRA 12:1)
(Automobiles--Design and construction)

FITTERMAN, B.M., kand. tekhn.nauk.

Russian-made automobile with very small cylinder capacity.
Avt. prom. no.11:4-10 N '58. (MIRA 11:12)

1. Gesudarstvennyy seyuznnyy ordena Trudevego Krasnogo Znameni Nauchno-
issledovatel'skiy avtomebil'nyy i avtotraktornyj institut.
(Automobiles)

FITTERMAN, B., inzh., kand. tekhn. nauk

Small displacement engines. Za rul. 16 no.3:15-17 Mr '58.
(MIRA 13:3)
(Automobiles--Engines)

FITTERMAN, B.M.

Power transmissions. Za rul. 16 no.6:14-16 Je '58. (MIRA 11:9)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-
issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles--Transmission devices)

FITTERMAN, B.M., kand. tekhn. nauk

Running gear. Za rul. 16 no.8:18-19 Ag '58.

(MIRA 11:9)

1. Gosudarstvennyy sovuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles)

FITTERMAN, B.; DOLMATOVSKIY, Yu.

Selecting the type of Russian made automobiles with low gas consumption. Avt. transp. 36 no.8:38-43 Ag '58. (MIRA 11:9)

1.Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles)

BYUSSIYEN, Rikhard [Bussien, Richard]; OSTROVTSEV, A.N., prof., red.;
LIPGART, A.A., prof., zasluzhennyy deyatel' nauki i tekhniki,
red.; EITTERMAN, B.M., red.; TIKHONOV, A.Ya., tekhn.red.;
MOISEL', B.I., tekhn.red.

[Automobile handbook] Avtomobil'nyi spravochnik. Moskva, Gos.
nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. Pod obshchei
red. A.N.Ostrovtseva. 1959. 700 p. Vol.2. Pod obshchei red.
A.A.Lipgarta. 1959. 972 p. (MIRA 13:4)
(Automobiles--Handbooks, manuals, etc.)

FITTERMAN, B.

Creating a new type of automobile. Za rul. 17 no.3:15-16
Mr '59. (MIRA 12:5)

L.Glavnyy konstruktor Konstruktorskogo byuro legkovykh avtomobiley
Nauchnoissledovatel'skogo avtomobil'nogo i avtomotornogo instituta.
(Automobiles--Design and construction)

FITTERMAN, B.M., kand.tekhn.nauk

Weight analysis of small automobiles. Avt.prom. no.4:3-10 Ap '60.
(MIRA 13:6)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-
issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles--Design and construction)

FITTERMAN, Boris Mikhaylovich, kand. tekhn. nauk; GOL'D, B.V., doktor tekhn. nauk, retsenzent; DYBOV, O.V., kand. tekhn. nauk, red.; NAKHIMSON, V.A., red. izd-va; UVAROVA, A.F., tekhn. red.

[Small automobiles; survey of designs] Mikroavtomobili; obzor konstruktsii. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 270 p.

(MIRA 14:7)

(Automobiles—Design and construction)

FITTERMAN, B. M., kand. tekhn. nauk

Using independent suspensions of rear wheels in the design of
automobiles. Avt. prom. 28 no. 6:15-19 Je '62.
(MIRA 16:4).

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

(Automobiles—Springs)

STEPANOV, G.Yu.; FITTERMAN, B.M., kand. tekhn. nauk, retsenzent;
GALANOVA, M.S., inzh., red.; MODEL', B.I., tekhn.red.

[Hydrodynamic theory of ground-effect machines] Gidro-
dinamicheskaiia teoriia apparatov na vozдушnoi podushke.
Moskva, Mashgiz, 1963. 92 p. (MIRA 17:2)

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YEGOROV, L.A.; FITTERMAN, B.M.

Foreign ground-effect machines. Avt.prom. 29 no.2:44-48 F '63.
(Ground-effect machines) (MIRA 16:2)

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413310020-7"

FITTERMAN, B.M., kand. tekhn. nauk

Review of B.V. Gol'd's book "Design and construction of
automobiles." Avt. prom. 29 no. 7-48-3 of cover Jl '63.
(MIRA 16:8)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles—Design and construction)
(Gol'd, B.V.)

GINTSBURG, L.L., kand. tekhn. nauk; FITTERMAN, B.M., kand. tekhn. nauk

Some problems of the maneuverability of motor vehicles.
Avt. prom. 30 no.8:28-32 Ag '64.

(MIRA 17:11)

1. TSentral'nyy ordena Trudovogo Krasnogo Znameni nauchno-
issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

GINTSEBURG, L.L., kand. tekhn. nauk; FITTERMAN, B.M., kand. tekhn. nauk

Maneuvrability of motor vehicles. Avt. prom. 30 no.11.824-29
N '64
(MIRA 1882)

1. Tsentral'nyy ordena Trudovogo Krasnogo Znameni nauchno-
issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

YEGOROV, L.A., kand. tekhn. nauk; FITTERMAN, B.M., kand. tekhn. nauk

Information. Avt. prom. 31 no.3:44-49 Mr '65. (MIRA 18:7)

L 42925-66 EWT(d)/EWP(h)/EWP(1)
ACC NR: AP6006517 (A)

SOURCE CODE: UR/0113/65/000/011/0031/0035

AUTHOR: Shoykhet, B. M.; Yegorov, L. A. (Candidate of technical sciences); Fitterman,
B. M. (Candidate of technical sciences)

ORG: NAMI

TITLE: Some data from research on a full-scale automobile model with partial air
cushion wheel load relief

SOURCE: Avtomobil'naya promyshlennost', no. 11, 1965, 31-35

TOPIC TAGS: air cushion vehicle, light motor vehicle, vehicle engineering, performance test

ABSTRACT: The authors present the results of a study carried out at the Central
"Order of the Red Banner of Labor" Scientific Research Institute of Automobiles and
Automobile Engines on a full-scale experimental model to determine the effect of an
air cushion on the characteristics of a wheeled motor vehicle. This model consists
of an automobile with a 4x4 axle arrangement and a unit for relieving wheel load (see
figure). The unit for relieving the wheel load is a simple chamber type air cushion
consisting of the following parts: a chamber with a flexible curtain (1), two axial
blowers (2) and the blower motor (3). The area covered by the air cushion is 7.37 m².
The curtain can be lowered or raised by hand operated controls. Two intake lines (7)

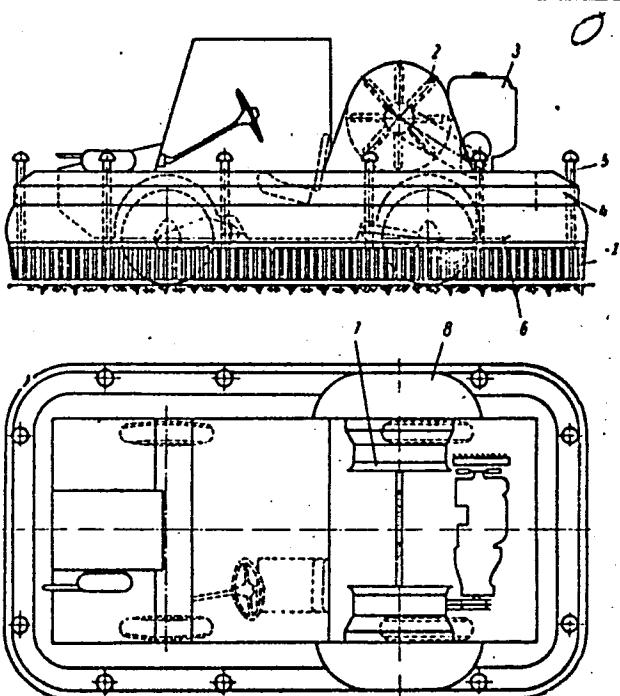
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UDC: 629.113-9.001.57

L 42925-66

ACC NR: AP6006517

bring the air to the blowers which then force it into two angular air ducts (8). The entire model was built using existing parts used for the ZAZ-965 and MZMA-407 light automobiles. The model was tested on wet loam and sandy beaches. The tests were designed to determine the basic traction-power and delivery-expenditure characteristics of the model. The test program included determination of the initial parameters for estimating ground mobility, rolling resistance, contact forces between the wheel and the ground and resistance of various parts of the curtain to motion over waterlogged ground. In comparing ground mobility of the model, the air cushion was used at various pressure values. The first full-scale tests show that the control of the vertical load on the wheel by using the air cushion makes it possible to insure maximum traction on surfaces with low load.



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ACC NR: AP6006517

capacity. Certain disadvantages were encountered in the bulldozer effect of the curtain. This caused considerable resistance of the curtain to motion and the blowing out of its lower edge increasing air expenditure. A need for further study and development of flexible curtains is definitely shown by the results of this study. Future curtains should be able to hold in pressure from the chamber side but should also be able to encounter obstructions without setting up resistance, and a mechanism should be developed for adjusting the height of the lower edge of the curtain. Orig. art. has: 5 figures, 2 tables, 12 formulas.

SUB CODE: 13/ SUBM DATE: None/ ORIG REF: 008/ OTH REF: 001

Card 3/3 *b7D*

PHASE I BOOK EXPLOITATION SOV/5460

57

Leningradskiy metallicheskij zavod. Otdel tekhnicheskoy informatsii.

Nekotoryye voprosy tekhnologii proizvodstva turbin (Certain Problems in the Manufacture of Turbines) Moscow, Mashgiz, 1960. 398 p.
(Series: Its: Trudy, vyp. 7) Errata slip inserted. 2,100 copies printed.

Sponsoring Agency: RSFSR. Sovet narodnogo khozyaystva Leningradskogo ekonomicheskogo administrativnogo rayona, Upravleniye tyazhelogo mashinostroyeniya, and Leningradskiy dvazhdy ordena Lenina metallicheskij zavod. Otdel tekhnicheskoy informatsii.

Ed. (Title page): G. A. Drobilko; Editorial Board: Resp. Ed.: G. A. Drobilko, B. A. Glebov, A. M. Mayzol', and M. Kh. Mornik; Tech. Ed.: A. I. Kontorovich; Managing Ed. for Literature on Machine-Building Technology: Ye. P. Naumov, Engineer, Leningrad Department, Mashgiz.

PURPOSE: This collection of articles is intended for technical personnel in turbine plants, institutes, planning organizations, as well as for production innovators.

Card-1/12

Certain Problems (Cont.)

SOV/5460
57

COVERAGE: The experience of the LMZ (Leningradskiy metallichесkiy zavod - Leningrad Metalworking Plant) in the manufacture of modern large-capacity turbines is presented. Methods for the rationalization of basic manufacturing processes and for the mechanization and automation of manual operations are given. Descriptions of attachments and tools designed by LMZ for improving labor productivity and product quality are provided, and advanced inspection methods discussed. References accompany some articles. No personalities are mentioned. There are 26 references: 25 Soviet and 1 English.

TABLE OF CONTENTS:

Foreword

3

I. NEW PROCESSING METHODS IN MACHINING
AND ASSEMBLY

Gamze, Z. M. [Engineer]. The Organization, Methods, and Trends in Efforts for Improving the Easy Manufacturability of Designs for Large Hydraulic Turbines

5

Card 2, 12

Certain Problema (Cont.)	SOV/5460	17
Gurskiy, A. N. [Engineer], S. N. Kupershik [Engineer], V. N. Yegorov [Engineer], and A. M. Filippov. The Improvement of As- sembly Process of Steam Turbines		
Dolgov, V. A. [Engineer], and S. D. Kuzinets [Engineer]. The Manufacture of Rims and Blades for Radial-Flow Turbines	85	
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II. THE MECHANIZATION AND AUTOMATION OF LABOR-CONSUMING OPERATIONS	125	

Card 442

GAL'PERIN, M.I., inzh.; FITERMAN, Ya.F., inzh.

Signs of cavitation damage in hydraulic turbines and their repair
under operating conditions. Energomashinostroenie 9 no.2:
32-36 F '63. (MIRA 16:3)
(Hydraulic turbines)

23958

*16.8000 (1031,1132,1344)*S/103/61/022/007/004/008
D252/D302AUTHOR: Fitsner, L.N. (Moscow)

TITLE: Automatic optimization of a space distribution. II

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 7, 1961,
857-864

TEXT: The conditions are ascertained for the stability of a search process. The process of finding the extremum of the function which characterizes the spatial position of blanks for parts is affected by mechanical aspects of the system and by random noises. In the search for the extremum of the function Q of the variables x_1, \dots, x_n , it is possible to approximate this function in the neighborhood of the extremum by the quadratic form

$$Q = \sum_{i=1}^n \sum_{j=1}^n \alpha_{ij} x_i x_j . \quad (1)$$

It is much easier to find the extremum if this quadratic form is
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canonical

$$Q^* = \sum_{i=1}^n b_i y_i^2. \quad (2)$$

For n = 3

$$y_k = \sum_{j=1}^3 x_j \cos \alpha_{jk} \quad (k = 1, 2, 3), \quad (3)$$

Hence the problem of transforming (1) into (2). As the coefficients a_{ij} are not known in advance, this transformation has to be carried out during the process of finding the minimum. The coordinate transformation is done by the automatic coordinate transformer whose system is shown in Fig. 1. O denotes the object at whose output the function $Q(y_1, y_2, y_3)$ is obtained; CT is the coordinate transformer, AO₁ the main optimizer which finds automatically the variables x_1, x_2, x_3 which minimize Q, STM is the time-of-search measurer and AO₂ is an auxiliary optimizer; q_1, q_2, q_3 are three parameters for the minimization of the time of search. Hence two optimization processes take place. The automatic coordinate transformer contains a circuit which transforms the three input parameters q_1, q_2, q_3 into

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the nine coefficients $\cos \alpha_{1,k}$. The lag elements of the system are the control device, the platform with the part, and the relay which changes the direction of motion of the control device. The relays which belong to the automatic optimizer introduce a delay into the system. With a given method of search, the stability primarily of the search process for the partial extrema with respect to each variable depends on the parameters of the lag elements of the system. In order that the search be stable, it is necessary to correctly choose the time intervals T between measurements of increments of Q as quoted in L.N. Fitsner (Ref. 5: O printsipe postroeniya i metodakh analiza nekotorykh tipov ekstremal'nykh sistem. Trudy konferentsii po teorii i primeneniyu diskretnykh avtomaticheskikh sistem 22 - 26 sentyabrya 1958. Izd-vo AN SSSR, 1960) Regarding the influence of the dead zone it is pointed out that it is necessary to find the extremum of $Q = Q(x)$ with the dead zone δ_H . The relationship between the amplitude x_0 and period T_0 of hunting and the dead zone is given by

$$T_0 = 4 \frac{x}{\mu_{\max}} < 4 \frac{\delta_H}{2a\mu_{\max}^2 T} + 4T \quad (16)$$

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Automatic optimization...

where μ_{\max} denotes the maximum value at the output of the chain of lag elements. Fig. 4 shows a search system which takes account of back-lash. From Ref. 5 (Op. cit) it follows that the operating condition for the system is

$$\mu_{\max} \int_0^T [2\gamma(t) - 1] dt - \delta > 0. \quad (17)$$

where ζ is the amplification factor of the integrating link and $\gamma(t)$ the transient function of LE. T can be determined by

$$T = T_1 + \frac{\delta}{5\mu_{\max}}. \quad (22)$$

In the studied system the dry friction is effective in the transfer of motion between control device and platform; a d.c. motor is used as control device. The conclusion is reached that dry friction permits reducing the total search-time; this however does not mean that it is always convenient to increase the friction, as it would necessitate a more powerful motor. It was noted (Ref. 1: Op. cit) that the uneven elements (knobs and hollows) of the surface of the blank are the main sources of noise; their influence depends on the opti-

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Automatic optimization...

mization criterion chosen. The criteria Q_2 (maximization of minimum deviation) and Q_1 (minimization of maximum deviation) are advantageous. A special computer, called the automatic synthesizer has been elaborated for noise-influence problems. There are 6 figures and 5 Soviet-bloc references.

SUBMITTED: October 11, 1960

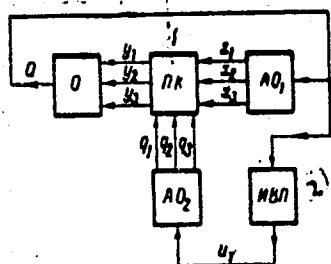


FIG. 1

Fig. 1: Legend (1) CT;
(2) STM

Fig. 4: Legend (1) LE - chain of lag elements;
(2) I - integrating link;
(3) BL - backlash link;
(4) N - non-linear element
whose characteristic has
an extremum.

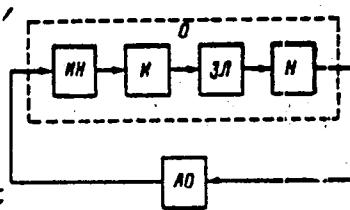


FIG. 4

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16,8000(103,112,1132)

24836
S/103/61/022/008/004/015
D274/D302

AUTHOR: Fitsner, I. N. (Moscow)

TITLE: Automatic optimization of a space distribution . III

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 6, 1961,
1002-1012

TEXT: The apparatus is described for automatic synthesis of optimization systems (which were considered by the same author in Parts I and II of the present article: Avtomatischekaya optimizatsiya prostranstvennogo raspredeleniya. I, II, Avtomatika i telemekhanika, v. 22, no. 1 and 7, 1961). The automatic synthesizer contains the following main units: a) a multichannel automatic optimizer for finding extrema of functions; b) a linear filter whose parameters can vary under the influence of the voltage of the automatic optimizer; c) a controlled non-linear converter with a single input; d) a controlled non-linear converter with several inputs; e) a controlled model of the object with both linear and non-linear blocks; f) a voltage-storing unit. The synthesizer can be used for ascer-

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Automatic optimization...

taining the optimum design of control apparatus for a wide variety of automatic systems; but it is especially useful for optimization of space distributions as such synthesis problems involve complex variational problems (whose method of solution is not sufficiently developed as yet). For functions with several extrema, an optimizer has been designed which operates according to the scanning method. A block-diagram of the optimizer is given in fig. 1. It contains the generator 1, comparator 2, memory unit 3, restricting unit 4, and pulse generator 5; O is the object (or a model of it). The restricting unit allows only the storing of extremum coordinates which obey certain conditions. The controlled linear filter contains amplifier units with a variable amplification factor, oscillator elements for varying the natural frequency, and lag elements with variable time constant. The controlled non-linear converter with one input UNP-1 has to alter the form of the function f (which is unknown in advance) under the influence of the output voltages of the optimizer. The converter consists of 2 sub-units: the sub-unit of stepwise approximation, and the linear approximator. In order to speed up the search process, the converter has a broad

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bandpass, and the duration of the transient processes in triggers was reduced. The voltage applied is a non-linear function of 2 variables. This function is reproduced by approximating it through portions of a linear surface. The converter consists of 3 subunits. Such a model allows for reproduction of dry friction, dead zone, backlash and restriction. If the object has more complex non-linearities, a general-purpose converter UNP-1 can be used. The voltage storing unit (ZU-144) has 144 similar cells, each of which can store one voltage in the range of ± 100 v. All the units of the synthesizer were tested and their accuracy was found to be satisfactory. There are 11 figures and 9 Soviet-bloc references.

SUBMITTED: December 12, 1960

Fig. 1 Legend: Automatic optimizer AO

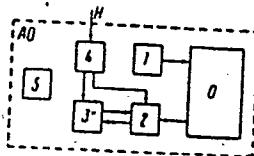


Fig. 1

Card 3/3

FITTL, F.

Tasks of the food-reservation industry. p. 369.

PRUMYSL POTRAVIN. Praha.

Vol. 6, no. 8, 1955.

SOURCE: East European Accession List (EEAI), LC, Vol. 5, no. 3, March 1956.

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spolupraca: CERNUSAKOVA, M.; FITTOVA, E.; HROCHOVA, L.;
ULLRICHHOVA, G.

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MUDr. M. Hrubisko, C.Sc.); II. chirurgicka klinika Lek. fak.
Univerzity Komenskeho v Bratislave, (veduci prof. MUDr. K.
Siska, Dr. Sc.,) a Oddelenie experimentalnej chirurgie Ustavu
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(veduci akademik CSAV K. Siska).

POLAND / Cultivated Plants. Medicinal Plants.
Essential-Oil Plants. Poisonous Plants.

M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25110

Author : Fitulska, I.

Inst : Not given

Title : Adonis vernalis L.

Orig Pub : Hodowia rosl., aklimat. i nasienn., 1957,
1, No 5-6, 679-685

Abstract : No abstract given

Card 1/1

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CIA-RDP86-00513R000413310020-7

FILINI, L.

The Soviet Union and international economic cooperation. Moskva, Izd-vo
Akademii nauk SSSR, 1952. 38 p. (53-15367)

HF1411.F53

DS

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413310020-7"

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.F5

MEZHDUGOSUDARSTVENNYYE TORGOVYYE DOGOVORY I SOGLASHENIYA (INTER-GOVERNMENT TRADE AGREEMENTS AND ARRANGEMENTS) MOSKVA, GOSYURIZDAT, 1955.
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["Colembo Plan" and Southeastern Asia] "Plan Kolombo" i IUGo-
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135 p. (MIRA 13:6)
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FITUNI, Leonid Arkad'yevich; SHCHETININ, Valentin Dmitriyevich; MIRONOV,
V.S., red.; ROMANOVA, N.I., tekhn. red.

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blemy pomoshchi ekonomicheski slaborazvitym stranam. Moskva,
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(Underdeveloped areas) (Economic assistance) (MIRA 14:10)

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[International economic organizations; handbook] Mezhdunarodnye ekonomicheskie organizatsii; spravochnik. 2., dop. izd. Moskva, Izd-vo Akad. nauk SSSR, 1962. 1108 p. (MIRA 15:2)

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SKLAR A KERAMIK, Prague, Vol. 6, no. 3, Mar. 1956.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6 June 1956, Uncl.

COUNTRY	: Czechoslovakia	E-13
CATEGORY	:	
ABS. JOUR.	: RZKhim., No. 21 1959, No.	75568
AUTHOR	: Fitz, H.	
INST.	: Not given	
TITLE	: A New Process for Cooling the Walls of Glass-Melting Tanks	
ORIG. PUB.	: Sklar a Keramik, 9, No 1, 14-15 (1959)	
ABSTRACT	: A process for cooling the walls of glass-melting tanks is described. The process is characterized in that the cooling air flows through long narrow flues in the walls of the tanks. The length and cross section of the flues are chosen so as to keep the temperature difference between the leaving and entering air below 20°. Arrangements for the automation of the cooling process and for supplying air simultaneously to several tanks are indicated. The flues are fabricated from sheet	
CARD: 1/3		

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COUNTRY :	Czechoslovakia	H-13
CATEGORY :		
ABS. JOUR. :	RZKhim., No. 21 1959, No.	75568
AUTHOR :		
ENCL. :		
TITLE :		
ORIG. PUB. :		
ABSTRACT :	metal, window glass (permitting the visual inspection of the state of the tank walls), or from refractories. The utilization of flues made from refractories sharply increases the life of the tanks, inasmuch as it eliminates the danger of wall burnouts. A furnace with two parallel refractory flues is described. In case of burnout of the furnace walls and of damage to the first flue, the second is placed in service. It is noted that a tank with two flues and with	

CARD: 2/3

COUNTRY	:	Czechoslovakia	
CATEGORY	:		H-13
ABS. JOUR.	:	RZKhim., No. 21 1959, No.	
AUTHOR	:		75568
INST.	:		
TITLE	:		
ORIG. PUB.	:		
ABSTRACT	:	a wall thickness of 300 mm can remain in service for 64 months, whereas a tank with equal wall thickness but without air cooling has a service life of 30 months.	
		V. Berenfel'd	
CARD: 3/3			

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August 1959.
Unclu.

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FITZEK, Antal, okl.mernok

New Czechoslovak record in shaft sinking. Bany lap 94 no.12:803 D '61.

BARTA, E.; FIZEL, A.; FIZELOVA, A.; PAVLOVICOVA, H.

Changes in the size of the heart shadow in the radiograph during adaptation of the heart to increased pressure work in experimental conditions. Bratisl. lek. listy 44 no.8:485-492 '64.

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BULIK, J.; FITZEKOVA, E.; Imuna, National Enterprise (n.p.),
Sarisske Michalany.

"Study of Some Physico-Chemical Properties of the Fibrin Foam
of Czechoslovak Production and its Comparison with the Foreign
Preparation Spongostan."

Prague, Ceskoslovenska Farmacie, Vol 15, No 5, Jun 66, pp 241-243

Abstract /Authors' English summary modified/ Preparation of fibrin from the fractions I and III obtained by fractionation of blood plasma, after repeated extraction of gamma globulin, is described. The gelatin concentration is increased from the usual 1.5% to 4.5-6%; better physico-chemical properties of the preparations are obtained. The preparation is equal in most properties to Spongostan, and exceeds it in some respects. 3 Tables, 9 Western, 4 Czech, 7 Russian, 2 Hungarian references. (Manuscript received 5 Feb 65).

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- 48 -

BARTA, E.; FIZEL, A.; FIZELOVA, A.; PAVLOVICOVA, H.

Changes in the size of the heart shadow in the radiograph during adaptation of the heart to increased pressure work in experimental conditions. Bratisl. lek. listy 44 no.8:485-492 '64.

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Univerzity Komenskeho v Bratislave (veduci doc. dr. E. Barta CSc).

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(RHEUMATIC HEART DISEASE, case reports
atypical forms, in child.)

(RHEUMATIC FEVER, case reports
atypical forms, in child.)

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413310020-7

KCDRON, Mieczyslaw (Warszawa); FITZEK, Marian (Warszawa)

New trends of activities in the field of cold storage. Przem
spoz 15 no.9:33-38 '61.

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413310020-7"

PHASE I BOOK EXPLOITATION

SOV/5291

Soveshchaniye po kompleksnoy mekhanizatsii i avtomatizatsii tekhnologicheskikh protsessov v mashinostroyenii. 2d, Moscow, 1956

Avtomatizatsiya mashinostroitel'nykh protsessov. t. III: Obrabotka rezaniyem i obshchiye voprosy avtomatizatsii (Automation of Machine-Building Processes. v. 3: Metal Cutting and General Automation Problems) Moscow, Izd-vo AN SSSR, 1960. 296 p. (Series: Its: Trudy, t. 3) 4,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: V. I. Dikushin, Academician; Ed. of Publishing House: V. A. Kotov; Tech. Ed.: I. F. Kuz'min.

PURPOSE: This collection of articles is intended for technical personnel concerned with the automation of the machine industry.

COVERAGE: This is Volume III of the transactions of the Second Conference on the Full Mechanization and Automation of Manufacturing Processes in the Machine Industry, held September 25-29,

Card 1/7

Automation of Machine-Building Processes (Cont.)

SOV/529.1

1956. The transactions have been published in three volumes. Volume I deals with the hot pressworking of metals, and volume II, with the actuation and control of machines. The present volume deals with the automation of metal machining and work-hardening, and with general problems encountered in automation. The transactions on the automation of metal-machining processes were published under the supervision of F. S. Dem'yanok and A. M. Karatygin, and those on the automation of work-hardening processes, under the supervision of E. A. Satel' and M. O. Yakobson. No personalities are mentioned. There are no references.

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- Ioannsyants, M. Ya. Investment per Unit of [Rated] Horse-power in the Automobile Industry 285

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VK/wrc/os
7/29/61

16.8000 (1031, 1121, 1329)

27638

S/194/61/000/002/026/039
D216/D302

AUTHOR: Fitzner, L.N.

TITLE: Principles of design and methods of analyzing certain types of extremum systems

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 2, 1961, 36, abstract 2 V281 (V sb. Teoriya i primeneniye diskretn. avtomat. sistem. M., AN SSSR, 1960, 480-504)

TEXT: 2 types of automatic optimizers AO have been designed at the NANTAH (IAITAN): one with a relay circuit and the other with interference-nullifying features and proportional action. The first secures a smooth approach to the extremum. The proper choice of the direction in which the approach is made is sampled periodically. With the wrong direction a reversal occurs. Oscillations of constant frequency and amplitude occur around the extremum. If such an AO operates with a load of the first order with inertia. X

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Principles of design...

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then, depending on the ratio of the load time constant to the period of measurement T, a steady state operation is possible together with the search of the first kind. If the load consists of series connected two objects with inertia and of the integrator, then, depending on the ratio τ_l/τ_r and T/τ_l , the search of the first and second order is possible. The AO of the second type secures a slowing down of the approach to the extremum and practically a full-stop at the extremum itself. The interference-nullifying feature is achieved by using an integrator and an inertia filter. For the given type of optimizer the formula for the search-time is derived. 11 references.

Card 2/2

N. Fucine

Distr: 4E³d
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A. Berlin

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